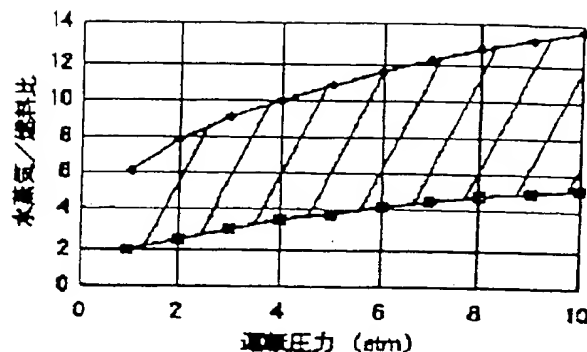


Patent Abstracts of Japan

PUBLICATION NUMBER : JP10255830
 PUBLICATION DATE : 25-09-98
 APPLICATION NUMBER : JP970059190
 APPLICATION DATE : 13-03-97

VOL: 98 NO: 14 (-)
 AB. DATE : 31-12-1998 PAT: A 10255830
 PATENTEE : TOSHIBA CORP
 PATENT DATE: 25-09-1998

INVENTOR : OGAWA HAKARU;
 HORI MICHIO;
 NAKAGAKI TAKAO;
 MURATA KEIJI;
 SASAKI MASAKUNI;
 FUKUDA MASAFUMI



INT.CL. : H01M8/06

P, x

TITLE : OPERATING METHOD FOR FUEL CELL

ABSTRACT : PROBLEM TO BE SOLVED: To provide a method wherein deposition of carbon can be suppressed and a fuel cell can be operated for a long time stably, when methanol, ethanol or dimethyl ether is supplied as its fuel to a fuel electrode of the fuel cell.
 SOLUTION: A fuel cell contains electrolyte, a fuel electrode and an oxidizer electrode to put the electrolyte mentioned above between, and an operating temperature is set at 550-750 deg.C. In this case, a mol mixing rate for water and fuel is set for, (1) When fuel containing methanol is used, $0.250+0.287 P-1.08 \times 10^{-2} < P < 2 > \leq S/C \leq 1.994+0.724 P-2.96 \times 10^{-2} < P < 2 >$, (2) When fuel containing ethanol or dimethyl ether is used, $1.500+0.574 P-2.15 \times 10^{-2} < P < 2 > \leq S/C \leq 4.993+1.451 P-5.96 \times 10^{-2} < P < 2 >$, (In the above, P is an operating pressure for each fuel cell (atm)), and the fuel is supplied to the fuel electrode of this fuel cell.

Handwritten signature or mark.

XP-002107520

| | |
|----------------------|-----|
| P.D. 1998 | (2) |
| p. = | |

CA COPYRIGHT 1999 ACS
 AN 129:233126 CA
 TI Method for operating ***fuel*** ***cells***
 DT Patent
 IN Ogawa, Hakaru; Hori, Michio; Nakagaki, Takao; Murata, Keiji; Sasaki, Masakuni; Fukuda, Masafumi
 PA Toshiba Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|-------------|------|----------|-----------------|----------|
| PI | JP 10255830 | A2 | 19980925 | JP 97-59190 | 19970313 |
| PY | 1998 | | | | |

AB ***Fuel*** ***cells*** having an electrolyte between a cathode and an anode and an operation temp. of 550-750 degree. are operated by using a MeOH-water mixt fuel, having a MeOH/H₂O mol ratio between (0.250 + 0.287P - 1.08x10⁻²P²) and (1.994 + 0.724P - 2.96x10⁻²P²), where P is the operational pressure of the cells in atm. The ***fuel*** ***cells*** may also us EtOH-H₂O or Me₂O-H₂O fuel mixts with a EtOH/H₂O or Me₂O/H₂O mol ratio between (1.500 + 0.574P - 2.15x10⁻²P²) and (4.993 + 1.451P - 5.96x10⁻²P²).

EUROPEAN PATENT OFFICE

Patent Abstracts of Japan

PUBLICATION NUMBER : 10255830
PUBLICATION DATE : 25-09-98

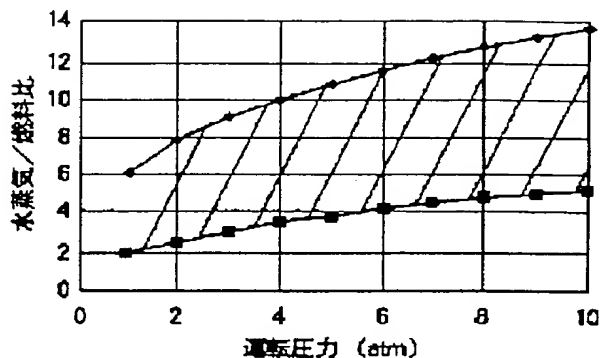
APPLICATION DATE : 13-03-97
APPLICATION NUMBER : 09059190

APPLICANT : TOSHIBA CORP;

INVENTOR : FUKUDA MASAFUMI;

INT.CL. : H01M 8/06

TITLE : OPERATING METHOD FOR FUEL CELL



ABSTRACT : PROBLEM TO BE SOLVED: To provide a method wherein deposition of carbon can be suppressed and a fuel cell can be operated for a long time stably, when methanol, ethanol or dimethyl ether is supplied as its fuel to a fuel electrode of the fuel cell.

SOLUTION: A fuel cell contains electrolyte, a fuel electrode and an oxidizer electrode to put the electrolyte mentioned above between, and an operating temperature is set at 550-750°C. In this case, a mol mixing rate for water and fuel is set for, (1) When fuel containing methanol is used, $0.250+0.287P-1.08\times 10^{-2}P^2 \leq S/C \leq 1.994+0.724P-2.96\times 10^{-2}P^2$, (2) When fuel containing ethanol or dimethyl ether is used, $1.500+0.574P-2.15\times 10^{-2}P^2 \leq S/C \leq 4.993+1.451P-5.96\times 10^{-2}P^2$, (In the above, P is an operating pressure for each fuel cell (atm)), and the fuel is supplied to the fuel electrode of this fuel cell.

COPYRIGHT: (C) JPO

XP-002107545

1/1 - (C) WPI / DERWENT
AN - 98-574080 ç49!
AP - JP970059190 970313
PR - JP970059190 970313
TI - Operating method of fused carbonate fuel battery -
involves using specific ratio of mixture of steam and
carbon by mixing water and methanol at operating
pressure of fuel battery so that specific relation is
satisfied
IW - OPERATE METHOD FUSE CARBONATE FUEL BATTERY SPECIFIC
RATIO MIXTURE STEAM CARBON MIX WATER METHANOL OPERATE
PRESSURE FUEL BATTERY SO SPECIFIC RELATED SATISFY
PA - (TOKE) TOSHIBA KK
PN - JP10255830 A 980925 DW9849 H01M8/06 005pp
ORD - 1998-09-25
IC - H01M8/06
FS - EPI
DC - X16
AB - J10255830 The method involves operating the battery at
a high temperature of 550-750 deg. C. The battery
contains the electrolyte sandwiched between the fuel
pole and an oxidising air pole. Methanol is employed as
the fuel. The molar mixing ratios of steam and carbon
(S/C) of water and methanol contained in the fuel is
 $0.250 + 0.287P - 1.08 \times 10^{-2} P^2 = S/C = 1.994 + 0.724P - 2.96 \times 10^{-2} P^2$ where P' is the operating pressure of the fuel
battery in atmosphere. The fuel of the mix ratio is
supplied to the fuel pole.
- ADVANTAGE - Enables use of methanol, ethanol or
dimethyl ether as fuel. Enables to suppress carbon
precipitate. Provides stable operation of fuel battery
for long period of time.
- (Dwg. 1/2)